Service Manual

for seca 703

Variants:
7031321007
7031321367
7031321993

Service Manual Number
17-05-01-377-
Valid as of: 01.10.2012

Description:

Column scale, digital, NEC II electronic and radio module

When servicing or repairing seca devices according to this service manual, always take note of the instruction manual of the product. To download the latest version of the instruction manual and EMC Recommendation go to www.seca.com.

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Electronics (NEC2) Service Instructions

MODEL
[374|376|378|703|704|264|274|284|285|954|957|959|963]

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1 General Information [374|376|378|703|704|264|274|284|285|954|957|959|963]

These service instructions are intended for specialist staff responsible for maintenance and repair of the devices. These persons must be familiar with all the relevant electro-technical regulations and must adhere to them any time. These instructions are not suitable for users without specialist knowledge.

These instructions describe how to service the devices [374|376|378|703|704|264|274|284|285] equipped with NEC2 electronic modules. The device types for which these instructions apply are listed in the section headings. There are some identical models with NEC1 electronic modules. These instructions are not valid for those types.

What is the structure of this document and how should you read it? Section 1 provides a short overview of the most important points for service. We recommend you should read it completely. Section 2 deals with the maintenance of the devices, i.e. work that may have to be carried out more frequently. This section can be read as and when required. Troubleshooting is covered in section 4, where you find detailed descriptions of various measurements intended to identify specific errors. Starting point for troubleshooting is section 3, which includes an overview of error descriptions and the inspection steps required to identify them.

1.1 Type Plates [374|376|378|703|704|264|274|284|285|954|957|959|963]

To enable you to identify the device, information about the model and serial number is found on the underside or on the frame of the device (see Figure 1: Type plate (left: approved [376|378|704|385]; right: non-approved) [376|703|284])

Note down this information so that you have it on hand in case you need to contact us for queries or spare parts orders.

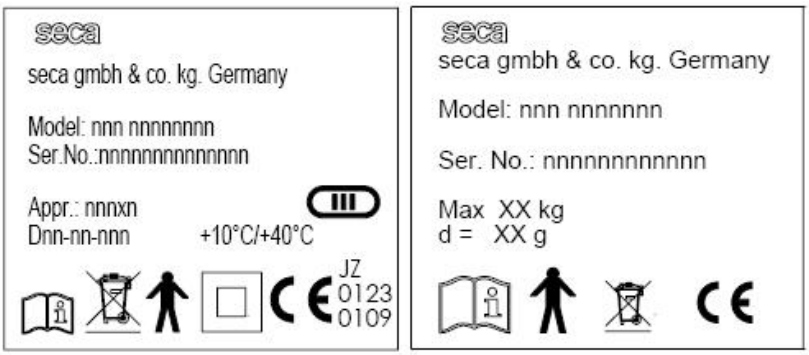


Figure 1: Type plate (left: approved [376|378|704|385]; right: non-approved) [376|703|284])

1.2 Design and Function of the Scale Part [374|376|378|703|704|264|274|284|285|954|957|959|963]

1.2.1 Design [374|376|378|703|704|284|285]

The scale consists of the following main parts: the frame with up to four load cells, a display unit, a key panel and a power supply unit.

1.2.2 Function [374|376|378|703|704|284|285]

The action of a force causes elastic deformation of the load cell. A corresponding analog signal is supplied, which changes linearly with the force applied. This signal is measured and evaluated by the scale electronics and displayed as a weight value. Figure 2: Functional diagram [704|284|285]

shows the functional diagram for scales with separated modules for determining and displaying the weight. Figure 3: Functional diagram [374|376|378|703]

shows the functional diagram for scales with a single electronic module for weight measurement and display.

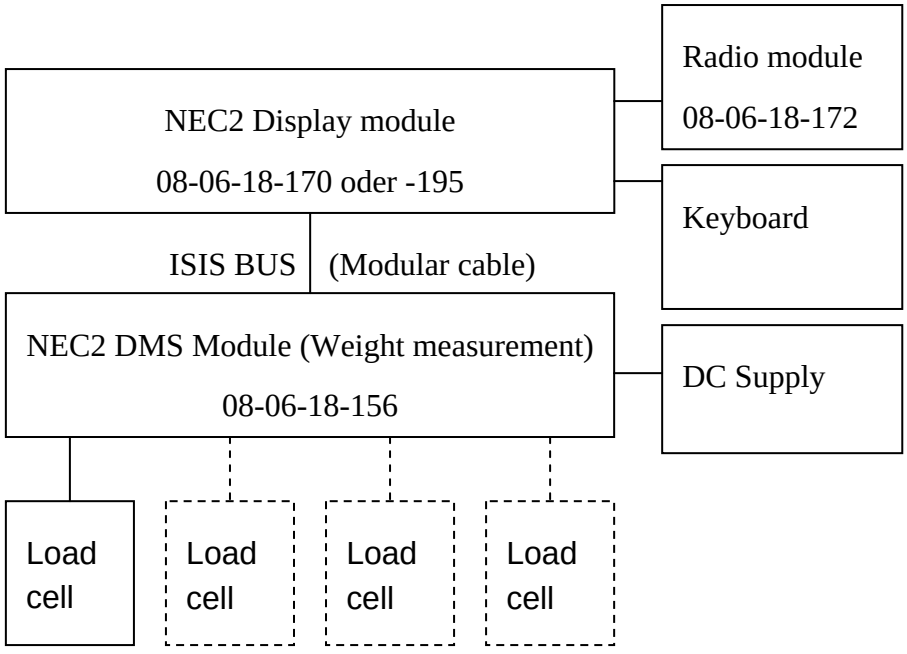


Figure 2: Functional diagram [704|284|285]

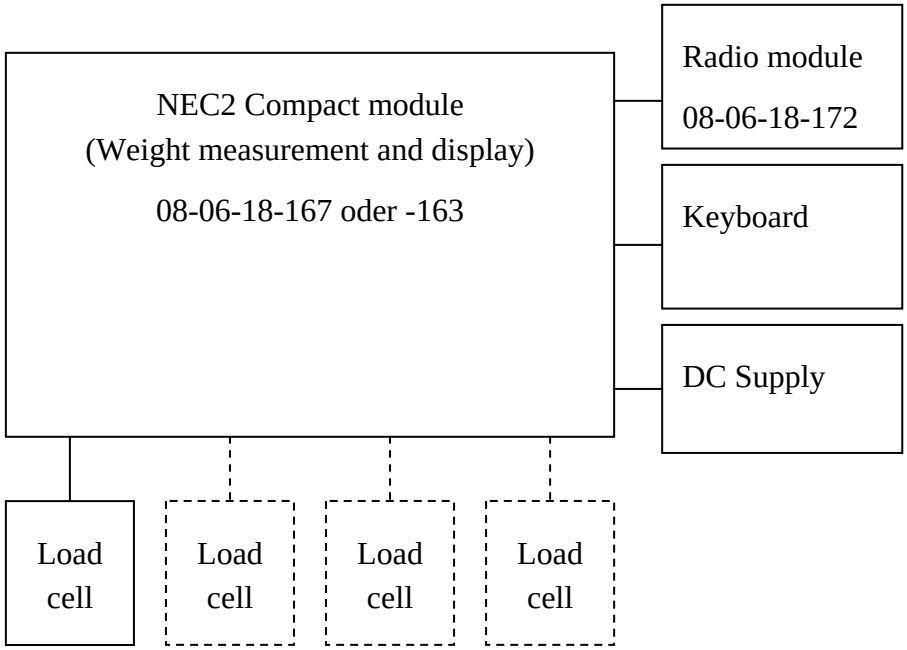


Figure 3: Functional diagram [374|376|378|703]

1.3 Design and Function of the Head Slider [264|274|284|285]

The head slider uses the measuring method of visual reading off from the insert scale. Absolute and relative graduation marks are scanned to determine lengths. Once the slider has moved more than two absolute marks, the absolute position can be determined and a length is output.

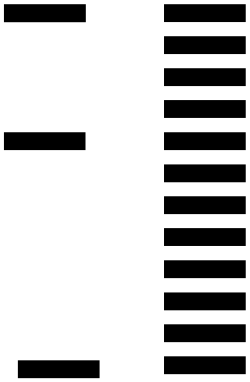


Figure 3: Absolute (left) and relative graduation marks (right) [264|274|284|285]

2 Maintenance [374|376|378|703|704|264|274|284|285|954|957|959|963]

The following section provides an overview of all maintenance jobs which can be carried out.

To call up the Service Menu, start the scale while pressing another key *at the same time*. This causes the content of the calibration counter (i.e. the number of adjustment operations carried out so far) to be displayed for 24 seconds (flashing). While the calibration count is displayed, a key must be kept pressed (for more than 1.5 seconds); the scale then automatically displays the software identification number and the check digit.

Keypress (any key) and START key simultaneously

- Calibration counter [see 2.1.2]
- Long keypress (any key)

Automatic display for 6 seconds

- XX.YY (software identification)

Then automatic display for 6 seconds

- XXXX (check digit)

Then automatic display

- CAL [see 2.1.5]

  Long keypress (any key)

  - o DEC

  Long keypress (any key)

  - o INC

Short keypress (any key)

- GAL [see1.3]

  Long keypress (any key)

  - o XXXXX (gravity factor)

Short keypress (any key)

- INFO

  Long keypress (any key)

- o No: X (module number)

  Long keypress (any key)

- o XXX.XX (firmware version, e.g. 290.07)

- End

Software identification and check digit:

The existing seca firmware version number is retained and can be called up.

Firmware software identification

Each and every firmware is given its own software identification number.

This software identification number is composed of a version number for the program part that is subject to verification and a version number for the program part that is not subject to verification.

Example: 01.08 01 - subject to verification

08 - not subject to verification

Whenever the firmware is changed, the version number for the program part that is not subject to verification is increased. This is done by analogy with the firmware index.

When a program part is changed that is subject to verification, the version number for the program part that is subject to verification is also increased.

Software identification of the device

The overall version number of the **program parts** which are **subject to verification** is the total of the version numbers (subject to verification) of the individual hardware modules.

The overall version number of the **program parts** which are **not subject to verification** is the total of the version numbers (not subject to verification) of the individual hardware modules.

Firmware check digit

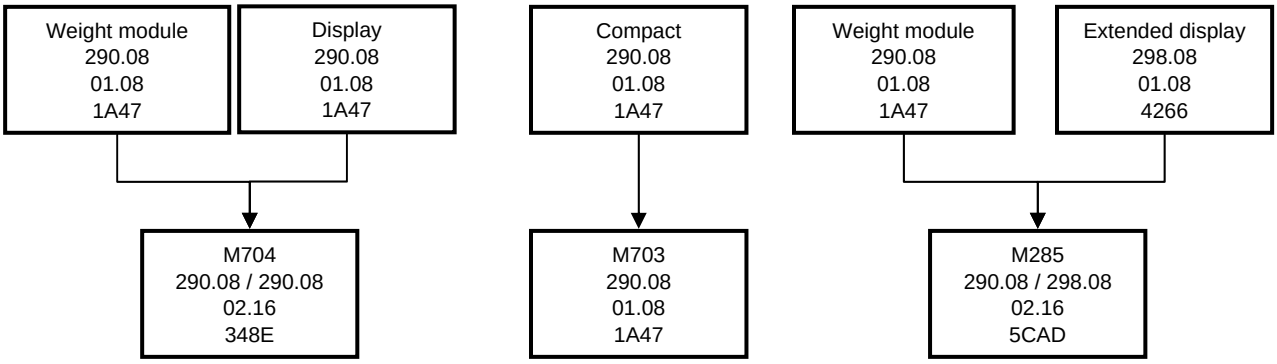
Every firmware is given its own check digit.

Device check digit

The overall check digit for the device is the total of the individual check digits.

Representation on display

Hardware module
Firmware version with index / internal seca value
PTB version number
PTB check digit



2.1 Adjustment of Scales [374|376|378|703|704|284|285|954|957|959|963]

2.1.1 General [374|376|378|703|704|284|285|954|957|959|963]

To compensate for linear measuring deviations, which occur e.g. as a result of gravity variations in different gravity zones, the scale offers an adjustment feature. This adjustment must also be carried out whenever the load cell is replaced.

seca scales with modular NEC-G2 electronics are fitted with a software-controlled adjustment device that is controlled using the existing operating elements. When developing the adjustment device, special attention was paid to the following requirements:

- It must be possible to readjust scales without any additional external equipment/tools.
- The readjustment device must be admissible for verification.
- It must be possible to readjust the scales without calibrated test weights.
- The readjustment device must be protected against inadvertent use.

Scale adjustment can be carried out manually as described in section 0 „Scales fitted with the new, modular electronics are equipped with a calibration counter allowing a software adjustment to be carried out in accordance with the requirements for verified scales. Each completed adjustment procedure is registered by the calibration counter, i.e. the number is automatically incremented by 1. Non-approved scales are also fitted with a counter which counts the number of adjustments.

” or using seca serva 2.0. Manual adjustment will not correct any corner errors.

2.1.2 Calibration Counter / Number of Adjustments [374|376|378|703|704|284|285|954|957|959|963]

Scales fitted with the new, modular electronics are equipped with a calibration counter allowing a software adjustment to be carried out in accordance with the requirements for verified scales. Each completed adjustment procedure is registered by the calibration counter, i.e. the number is automatically incremented by 1. Non-approved scales are also fitted with a counter which counts the number of adjustments.

2.1.3 Adjustment Mode and Displaying the Calibration Counter Contents [374|376|378|703|704|954|957|959|963]

To begin readjustment or to display the calibration counter contents, start the scale while pressing another key *at the same time*. The contents of the calibration counter (i.e. the number of adjustment procedures carried out so far) are then displayed for 18 seconds (flashing).

While the calibration count is displayed, a key must be kept pressed (for more than 1.5 seconds) to switch the scale to adjustment mode.

2.1.4 Adjustment Mode and Displaying the Calibration Counter Contents [284|285]

To begin readjustment or to display the calibration counter contents, start the scale and press another key *while the display shows seca*. The contents of the

calibration counter (i.e. the number of adjustment procedures carried out so far) are then displayed for 18 seconds (flashing).

While the calibration count is displayed, a key must be kept pressed (for more than 1.5 seconds) to switch the scale to adjustment mode.

2.1.5 Placing Adjustment Weights on the Scale [374|376|378|703|704|284|285|954|957|959|963]

Once you have switched to adjustment mode as described in section 0 or 2.1.4, the display shows the text “CAL”. By pressing any key except for the start key for more than 1.5 seconds, the actual readjustment mode is activated. The display reads "dec". The weight value currently measured then appears. The scale is in decrementing state. To switch over from decrementing to incrementing mode and vice versa press a key for more than 1.5 seconds with a test weight placed on the scale. The display will read “dec” or “inc” accordingly.

The test weight is at least 25% of the max. load of the scale (we recommend approx. 66-75%).

Adjustment can now be completed by pressing a key until the display shows “Sto”. The scale computes and stores a new linearity coefficient and switches off automatically. Your scale is now adjusted. Remove the test weight.

Note:

Timeout control is not active for the phase of placing and confirming the test weight.

To minimize adjustment errors, readjustment can only be carried out using a test weight above 25 % and below 100 % of the max. load. Otherwise the error “Er:x:15” will be displayed.

2.1.6 Example: Adjusting a Scale with 100g Graduations [703|704|284|285]

The selected test weight is 200 kg.

The current weight shown on the display is 199.7 kg (max. deviation of 300 g). In this example, you must switch the scale to incrementing mode to carry out readjustment. When the tare/hold key has been pressed (for more than 1.5 seconds), "inc" starts flashing.

Now increase the value by the first 10 g (by briefly pressing the tare/hold key). After this has been repeated x times, the value 200.0 (rounded!) appears on the display although the internal measured value still is 199.95 kg (not rounded!).

To correct this rounding error, increment the value five times by 10 g to obtain exactly 200.00 as the calculated value.

Complete the readjustment procedure as described in section 2.1.5.

2.1.7 Example: Adjusting a Baby Scale with 10g Graduations [374|376]

The selected test weight is 15 kg. The current weight shown on the display is 14.970 kg (max. deviation of 30 g).

In this example, you must switch the scale to incrementing mode to carry out readjustment. When the tare/hold key has been pressed (for more than 1.5 seconds), "inc" starts flashing.

Now increase the value by the first 1 g (by briefly pressing the tare/hold key). Each alteration is shown on the display.

Complete the readjustment procedure as described in section 2.1.5.

2.1.8 Overview of Adjusting a Scale with 100g Graduations [703|704]

Action carried out by the user	Result
The scale is switched off.	No values or characters on the display.
Press the tare/hold key and keep it pressed while simultaneously pressing the start key.	The contents of the calibration counter flash on the display for 18 seconds.
Release both keys.	The contents of the calibration counter flash on the display for 18 seconds.
Press the tare/hold key for more than 1.5seconds within the next 18seconds.	The system switches to adjustment selection mode and “CAL” flashes on the display.
18 seconds have passed and no key has	The scale switches off.

been pressed.	
Press the tare/hold key for more than 1.5 seconds.	"dec" appears on the display (flashing) and then the current weight (0.0 - also flashing).
Place the test weight on the scale.	The measured weight of the test weight appears on the display (flashing).
Decide whether to decrement or to increment: Incrementing: Press the tare/hold key for more than 1.5 seconds. Decrementing: No action required as the scale already is in dec mode.	 Incrementing mode is activated; "inc" appears on the display. No output on the display.
Decrementing or incrementing: Again briefly press the tare/hold key (for less than 1.5 seconds).	The measured weight is decremented or incremented by 10 g. Please remember that pressing the key does not always change the value on the display due to the low display resolution. Only the rounded value is output.
Repeat this step until the measured weight matches the test weight (format: xxx.0 kg).	The display indicates the test weight (format: xxx.0 kg).
To correct this rounding error, decrement or increment the value five times by 10 g.	The display indicates the exact test weight (format: xxx.0 kg).
Press the tare/hold key until the display shows “Sto”.	The display reads “Sto” and the scale switches off automatically.

2.1.9 Overview of Adjusting a Baby Scale with 10 g Graduations [374|376|378]

Action carried out by the user	Result
The scale is switched off.	No values or characters on the display.
Press the tare/hold key and keep it pressed while simultaneously pressing the start key.	The contents of the calibration counter flash on the display for 18 seconds.
Release both keys.	The contents of the calibration counter flash on the display for 18 seconds.
Press the tare/hold key for more than 1.5 seconds.	The system switches to adjustment selection mode and “CAL” flashes on the display.
18 seconds have passed and no key has been pressed.	The scale switches off.
Press the tare/hold key for more than 1.5 seconds.	"dec" appears on the display (flashing) and then the current weight (0.000 - also flashing).
Place the test weight on the scale.	The measured weight of the test weight appears on the display (flashing).
Decide whether to decrement or to increment: Incrementing: Press the tare/hold key for more than 1.5 seconds. Decrementing: No action required as the scale already is in dec mode.	 Incrementing mode is activated; "inc" appears on the display. No output on the display.
Decrementing or incrementing:	The measured weight is decremented or

Again briefly press the tare/hold key (for less than 1.5 seconds).	incremented by 1 g.
Repeat this step until the measured weight matches the test weight (format: xx.000 kg).	The display indicates the test weight (format: xx.000 kg).
Press the tare/hold key until the display shows “Sto”.	The display reads “Sto” and the scale switches off automatically.

2.2 Adjusting the Head Slider [284|285]

The head slider electronics must be readjusted whenever the electronics are replaced. Please refer to the instructions in the operating manual.

2.3 Displaying the Gravity Factor [374|376|378|703|704|284|285|954|957|959|963]

To view the gravity factor, the scale must first be switched to adjustment mode (see section 0 or 2.1.4).

As soon as the text “CAL” is displayed, press a key briefly (less than 1.5 seconds).

The display shows “GAL”.

Pressing a key for more than 1.5 seconds displays the gravity factor set. The gravity factor is shown in mm/s².

The scale switches off again automatically after 18 seconds.

Note [376|378|704|285]:

On verified scales, the gravity factor can only be displayed as long as the calibration count is 1.

2.4 Setting the Gravity Factor [374|703|284|954]:

The gravity factor can only be set on non-approved models [374|703|284].

Before the gravity factor can be set, the scale must first be switched to adjustment mode (see section 0 or 2.1.4).

While the calibration count is displayed, a key must be kept pressed (for more than 1.5 seconds) to switch the scale to adjustment mode.

As soon as the text “CAL” is displayed, press a key briefly (less than 1.5 seconds). The display shows “GAL”.

Then press a key (for more than 1.5 seconds) to switch the scale to the mode for gravity factor setting. The display shows “dec” and then the gravity factor currently set. The gravity factor is shown in mm/s².

The scale is in decrementing state.

If the gravity factor displayed matches the target value, no further setting is required and the menu item can be closed.

If the gravity factor shown on the display needs to be adjusted, it must be altered by pressing a key until it matches the gravity factor required. Estimate whether the required gravity factor is easier to reach by *decrementing* or by *incrementing*. To toggle between decrementing mode and incrementing mode, press a key (for more than 1.5 seconds.) (Display shows dec or inc.)

Press the key for less than 1.5 seconds to increase or decrease the gravity factor displayed by 5 mm/s². Repeat the procedure until the gravity factor displayed and the target gravity factor match.

Gravity factor setting can now be completed by pressing a key until the display shows “Sto”. The scale stores the new gravity factor and switches off automatically.

2.4.1 Example for Gravity Factor Setting [374|703|284|954]

The current gravity factor shown on the display is 98135 kg mm/s².

The target gravity factor is 98150 mm/s².

In this example, you must switch the scale to incrementing mode to set the gravity factor. When the tare/hold key has been pressed (for more than 1.5 seconds), "inc" starts flashing.

Now start to increase the value by 5 mm/s² (by briefly pressing the tare/hold key). After this has been repeated three times, the value 98150 mm/s² appears on the display.

Complete the gravity factor setting procedure as described above.

2.4.2 Summary of a Typical Gravity Factor Setting Sequence [374|703]

Action carried out by the user	Result
The scale is switched off.	No values or characters on the display.
Press the tare/hold key and keep it pressed while simultaneously pressing the start key.	The contents of the calibration counter flash on the display for 18 seconds.
Release both keys.	The contents of the calibration counter flash on the display for 18 seconds.
Press the tare/hold key for more than 1.5 seconds.	The system switches to adjustment selection mode and “CAL” flashes on the display.
18 seconds have passed and no key has been pressed.	The scale switches off.
Briefly press the tare/hold key (for less than 1.5 seconds).	“GAL” flashes on the display.
Press the tare/hold key for more than 1.5	"dec" appears on the display (flashing) and then the current gravity factor - also

seconds.	flashing.
Decide whether to decrement or to increment: <u>Incrementing:</u> Press the tare/hold key for more than 1.5 seconds. <u>Decrementing</u>: No action required as the scale already is in dec mode.	 Incrementing mode is activated; "inc" appears on the display. No output on the display.
Decrementing or incrementing: Again briefly press the tare/hold key (for less than 1.5 seconds).	The gravity factor displayed is decremented or incremented by 5 mm/s².
Repeat this step until the gravity factor displayed matches the target gravity factor.	The display shows the gravity factor (format: xxxxx mm/s²).
Press the tare/hold key until the scale switches off.	The display reads “Sto” and the scale switches off automatically.

3 Errors [374|376|378|703|704|284|285|954|957|959|963]

The following section provides an overview of possible error symptoms, their causes and the steps required to remedy the error. In addition, the error messages generated by the device and ways to eliminate them are explained.

3.1 Error Symptoms for Scale [374|376|378|703|704|284|285]

Error description	Possible causes	Remedy
Scale does not start	Battery not inserted or flat (if provided)	Check the batteries
	Voltage supply defective	See *section 4.1*
	Key panel defective or not connected	Check cable connections, check cable and key panel for interruptions, replace if necessary
Scale shows no weight or an incorrect weight	Packaging / transport locking device not removed completely	Check the scale
	Scale not correctly adjusted	See *section 2.1*
	Load cell damaged	See replacement instructions
	Force transmission into load cell interrupted	Check base frame for damage or incorrect assembly
Measured values vary greatly	Measurement electronics/load cell damaged	See replacement instructions

3.2 Error Symptoms for Head Slider [374|376|378|703|704|284|285|954|957|959|963]

Error description	Possible causes	Remedy
Head slider does not start	Battery not inserted or flat	Check the batteries
	Voltage supply defective	See *section 4.1*
	Key panel defective or not connected	Check cable connections, check cable and key panel for interruptions, replace if necessary
Head slider does not display a length or an incorrect length	Insert scale defective / missing / scale top and bottom reversed	Check the insert scale
	Head slider not adjusted correctly	See *section 2.2*
	Light barriers soiled	Clean the head slider barriers with a cloth
	Key unit not engaged correctly	Check the key unit

3.3 Radio Error Symptoms [374|376|378|703|704|284|285]

Error description	Possible causes	Remedy
Device does not transfer any data when the SEND or PRINT key is pressed	Teach-in phase not completed out successfully	Repeat teach-in phase (see operating instructions)

Error description	Possible causes	Remedy
Device beeps twice when sending and printing	Receiving device not switched on	Switch on all devices in the radio network
The device displays “Wait” at the end of the teach-in phase	Two devices are in the teach-in phase at the same time	Switch off all devices within radio transmission range and repeat the teach-in process

3.4 Scale Error Messages [374|376|378|703|704|284|285|954|957|959|963]

Display: **Er:x:nr** Electronics detecting a fault.

X : Module number
No Fault number

Scale displays	Cause	Remedy
Er:X:11	Load cell defective, supply lines damaged or electronics defective	seca serva diagnosis: replace load cell or electronics as required
		Replace the electronics
Er:X:12	Initial load too high	Check the initial load
Er:X:15	Readjustment error	Reference weight outside the permitted range or operating error
Er:X:16	Error when determining the switch-on zero point	Avoid subjecting the scale to vibrations during start-up
Er:X:30	Data transfer interrupted	Check the bus connection/ modular cable (if provided)

Er:X:32	Command buffer overflow error	Check the bus connection/ modular cable (if provided) Isolate briefly (60 sec)
Er:X:40	EEPROM data faulty	Readjust the scale or upload the scale adjustment data to the EEPROM via seca serva 2.0
Er:X:41	Incorrect EEPROM access	Replace the electronics
Er:X:43	EEPROM defective	Replace the electronics
Er:X:44	Calibration counter faulty	Replace the electronics
Er:X:45	EEPROM defective	Replace the electronics
Er:X:57	Quartz does not oscillate	Replace the electronics

3.5 Head Slider Error Messages [264|274|284|285]

Display: **Er:x:nr** Electronics detecting a fault.

X : Module number
No Fault number

Scale displays	Cause	Remedy
Er:X:40	EEPROM data faulty	Replace the electronics
Er:X:41	Incorrect EEPROM access	Replace the electronics

Er:X:43	EEPROM defective	Replace the electronics
Er:X:45	EEPROM defective	Replace the electronics
Er:X:57	Quartz does not oscillate	Replace the electronics

3.6 Radio Error Message [374|376|378|703|704|284|285|954|957|959|963]

Display: **Er:x:nr** Electronics detecting a fault.

X : Module number
No Fault number

Scale displays	Cause	Remedy
Er:X:71	Radio module is switched off	Switch on the radio module via the menu (see operating instructions)
Er:X:72	Error in teach-in mode	Repeat teach-in for the devices (see operating instructions)

4 Measurements [374|376|378|703|704|264|274|284|285|954|957|959|963]

The following section provides an overview of measurements which can be performed to identify specific errors.

4.1 Supply Voltage [374|376|378|703|704|264|274|284|285|954|957|959|963]

Measuring the supply voltage at the electronics board provides information on whether the supply lines to the battery compartment and/or the power supply unit are OK. Carry out the measurement by connecting a multimeter to measuring points A and B (see Appendix).

4.2 Load Cell [374|376|378|703|704|284|285|954|957|959|963]

The most effective way to identify a defect of the load cell is using the diagnosis function of seca serva 2.0; if this is not available you can alternatively use a multimeter (see 4.2.1). A multimeter measurement, however, is less conclusive so that it should always be second choice.

4.2.1 Measurement Using a Multimeter [374|376|378|703|704|284|285|954|957|959|963]

First of all, unsolder the load cell from the electronics and measure the resistance between the different connecting wires. The tables below show the values to be expected for the different types of load cells:

Measurement between	*Ohmic resistance [Ω]*
V_+ and Sig_+ 4 (blue and red)	~250-300
V- and Sig_+ (blue and white)	~250-300
V_+ and Sig- (red and black)	~250-300
V_- and Sig- (white and black)	~250-300
Sig_+/Sig-/V_+/V- and aluminium body of the load cell	> 1000 M

Table 1: Resistance of platform load cell type Kogean / HBM [703|704x|954|957|959|963]

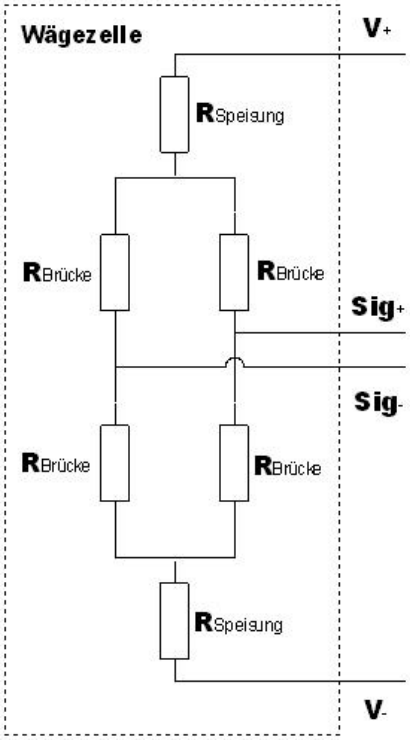
Measurement between	*Ohmic resistance [Ω]*
V_+ and Sig_+ 4 (green and red)	~ 800-850
V- and Sig_+ (green and white)	~ 800-850
V_+ and Sig- (red and black)	~ 800-850
V_- and Sig- (white and black)	~ 800-850
Sig_+/Sig-/V_+/V- and aluminium body of the load cell	> 500 M

Table 2: Resistance of Flintec / Kogean Planar Beam / --Wing load cell [376|378|284|285]

Measurement between	*Ohmic resistance [Ω]*
V_+ and Sig_+ 4 (green and red)	~840
V- and Sig_+ (green and white)	~840
V_+ and Sig- (red and black)	~840
V_- and Sig- (white and black)	~840
Sig_+/Sig-/V_+/V- and aluminium body of the load cell	> 500 M

Table 3: Resistance of VCARE [374]

The relevant cabling diagram shows the designations and associated cable colour. The measured values only have a limited informative value, however, as even a defective load cell can supply absolutely correct values when no load is placed on it. If the load cell supplies incorrect values when unloaded, it is definitely defective.


Wägezelle
V+
RSpeisung
RBrücke
RBrücke
Sig+
Sig-
RBrücke
RBrücke
RSpeisung
V-

5 Software intended Purpose

The radio modules of the devices with NEC2 electronics [374|376|378|703|704|264|274|284|285|954|957|959|963] as well as the seca 360° wireless USB adapter [456] contain software to control wireless communications. This software can be updated using the Windows-based "seca wireless updater" program. Removing or replacing the radio modules is generally not required.

The Windows program "seca wireless updater" has three functions:

- The configuration of the selected wireless group is displayed.
- A set-up process can be performed.
- The software in the radio modules or in the wireless USB adapter can be updated.

Updating a wireless USB adapter takes approximately 30 seconds, updating a radio module in a device can take up to five minutes, depending on the quality of the wireless transmission, but typically takes 1.5 minutes.

.

5.1 Installation and Start

The seca wireless updater is installed on a service PC or notebook using a Windows installation program (Setup). The latest version of the radio module software is copied to the PC together with the installation.

You can display the version numbers of the PC software and the radio module software installed on the PC. To do so, select the menu item “Help” - “About wireless updater”. Example:

5.2 Updating the Radio Module Software

Two cases can be distinguished:

1) The customer has a seca 360° wireless USB adapter [456] and has carried out set-up for his seca devices and this wireless USB adapter.

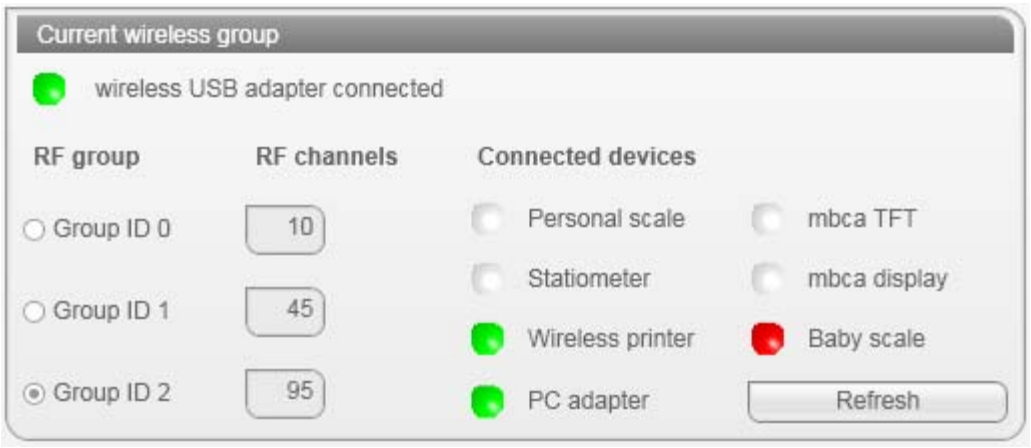
   In this case you should connect the customer's wireless USB adapter to your service PC and update the entire wireless group from your PC.

2) The customer does not have a wireless USB adapter.

   In this case you can use your own wireless USB adapter. Prior to updating, set-up must be performed for the customer's devices.

Note! The customer's wireless group will be overwritten by the set-up process. After updating, set-up of the customer's devices must be repeated – without connecting your wireless USB adapter. Teaching in again is necessary since otherwise the customer would receive error messages in future informing him that the wireless USB adapter is not available.

Information regarding the currently active wireless group is displayed in the main window of the seca wireless updater. In the example shown, wireless group 2 is active in which set-up has been performed for a wireless USB adapter, a baby scale and a wireless printer.



The seca wireless updater attempts to establish a wireless connection to the individual devices. Responding devices are indicated by a green symbol, devices in the wireless group which have been taught in but which are currently not available – e.g. because they are switched off – are indicated by a red symbol. A blue symbol means that the corresponding device is in updating

mode (the so-called download kernel). The “Refresh” button refreshes the display.

5.3 Set-up Process

This function corresponds to the set-up process carried out for a device. First of all, select the current wireless group on the left in the main window. You can now start teaching-in by pressing the “Set up wireless group” button.

Change the suggested transmission channels if required and confirm your selection with “Confirm channels”.

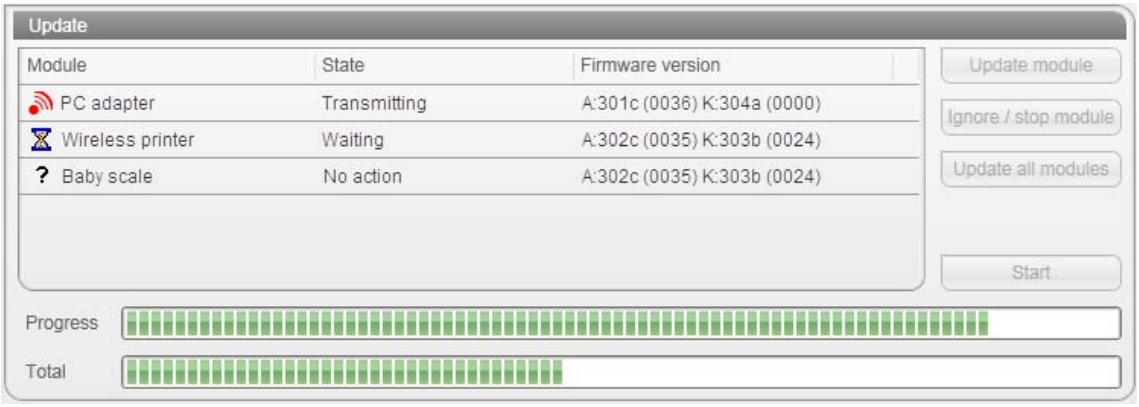
Please switch on the devices to be taught in one by one. Identification of the devices is indicated by a series of green symbols. Set-up is ended by pressing the “Complete login” button.

5.4 Updating the Radio Module Software

The lower part of the main window is intended for the actual updating of the radio modules. The radio modules in the active wireless group are shown in a list together with a symbol.

Symbol	Meaning
?	“No Action” – updating is not carried out.
	“Waiting” – this radio module is going to be updated but is still in the queue.
	“Transmitting” – this radio module is just being updated.
	“OK” – this radio module has been updated successfully.
	“Error” – an error occurred while updating this radio module.

Use the buttons on the right to activate or deactivate updating of the individual modules or enable all modules in the list to be updated in succession.



5.5 Technical Requirements for Updating

Updating by wireless transmission involves transferring large volumes of data. You should therefore ensure you have a stable wireless connection.

The distance between the wireless USB adapter and the device to be updated should - if possible - be less than 1.5 metres. For updating, you can connect the wireless USB adapter to the PC using a standard 5 metre USB extension cable (type A – type A) and hold or place the wireless USB adapter in the vicinity of the relevant radio module.

Battery-operated devices are switched off after a certain period of time [374|376|378|703|704|954|957|959|963]. Updating will only be successful if the device is prevented from switching off during data transmission. On scales, this can be achieved by placing a weight on the scale, changing the weight value or activating the HOLD function. The head sliders of the length measuring rods [264|274|284|285] must be moved from time to time. When scales and length measuring rods are being updated, a red bar regularly appears in the main window of the seca wireless updater to remind you to carry out activation/moving.

5.6 Updating the Wireless Printer Software

Note: In addition to updating the radio modules, it is essential that new software is also loaded on the seca wireless printers [465, 466]. If the previous wireless printer software is used in conjunction with updated radio modules, printing and teaching in the wireless printer is not possible.

The wireless printer software is updated automatically when an SD card with the new contents is inserted. The revision contained on the card is given on the sticker on the SD card. For the seca wireless printer 465, revision code **465d** or more recent is required (or **465dc**, **465dj**, **465dr** for the Chinese, Japanese or Russian version). The wireless printer 466, accordingly, requires revision code **466d, 466dc**, **466dj**, **466dr** or more recent.

5.7 Updating Old Printers

The printers of the old generation cannot be updated. This means they cannot be used in an updated wireless group. Re-programming of the printer at the seca headquarters in Hamburg is necessary.

The first printout shows whether the printer already belongs to the new generation. The new version consists of the download kernel, i. e. the program core "08-06-15-306a (rev. 10)" and the actual printer software "08-06-15-307b (rev.33)". Updating the software via SD card is possible if the kernel number 306a – or a more recent number (i.e. 306b, 306c, etc.) – is given on the printout.

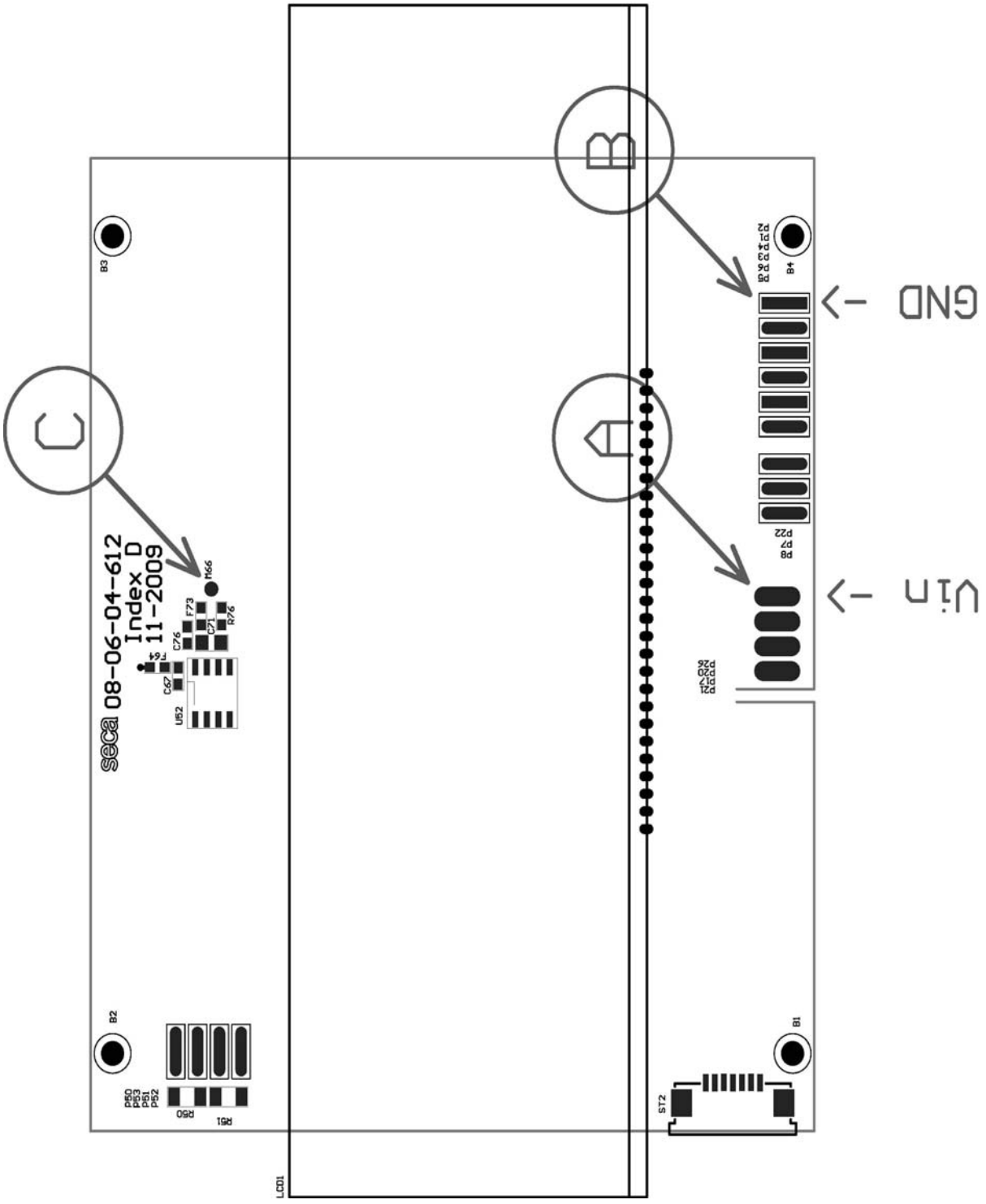
5.8 Problems with Updating

If the wireless connection is unstable, the PC program “seca wireless updater” repeatedly attempts to send the radio module software. If this is unsuccessful you can try to restart updating.

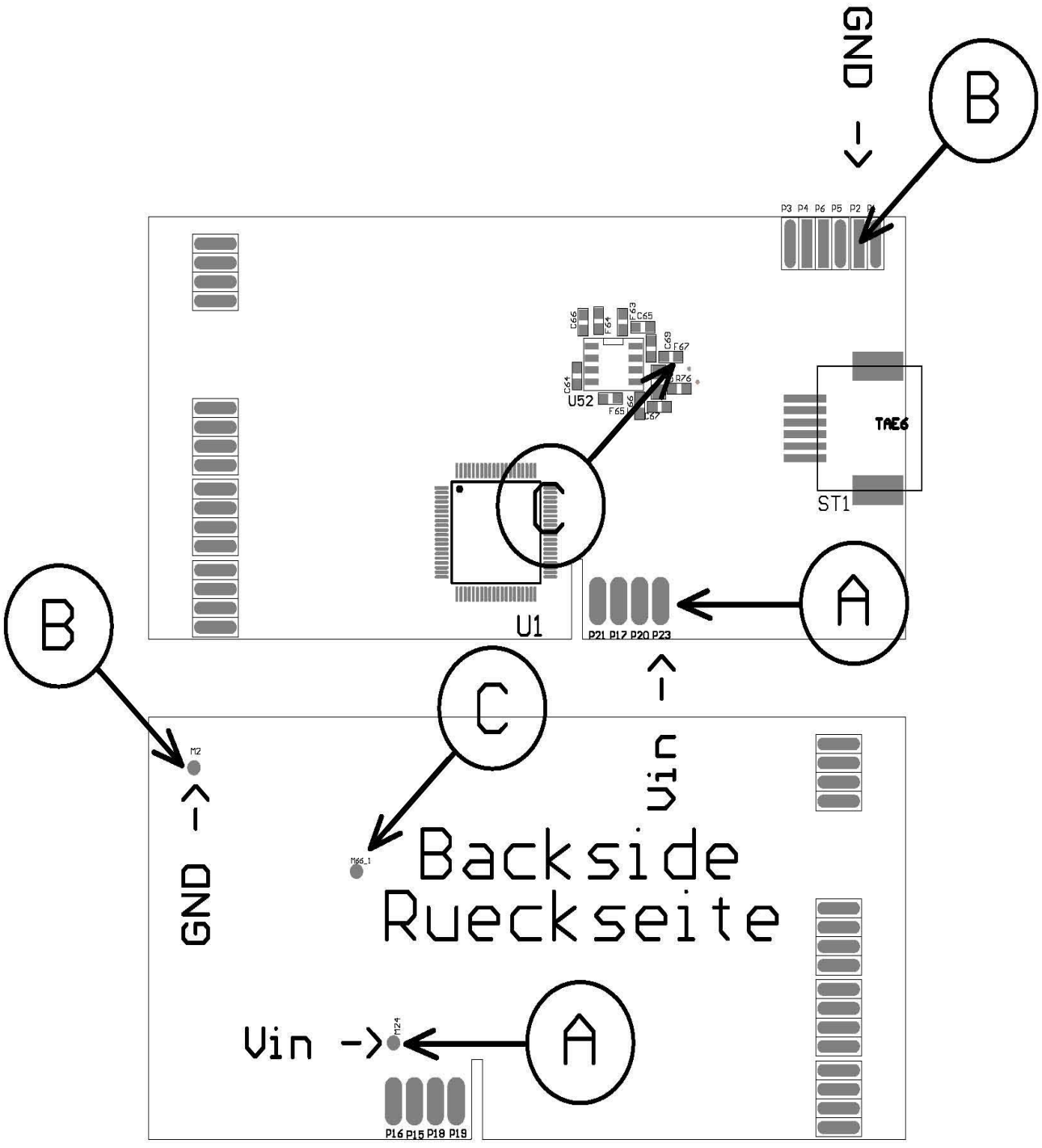
Remedies if Updating Fails
- Hold the wireless USB adapter closer to the radio module
- Avoid metal surfaces in the vicinity
- Do not stay in the immediate line of sight between the USB wireless adapter and the radio module
- Wait until interferences from electrical units (e.g. drills) or heavy wireless traffic (WLAN, bluetooth) have stopped
NEVER repeat set-up of the wireless group if an updating attempt has failed. Set-up is not possible in updating mode – it would no longer be possible to identify the corresponding device.

In rare cases, updating will fail entirely. The relevant radio module must then be reaced. The radio module can be returned to the seca headquarters for repair.

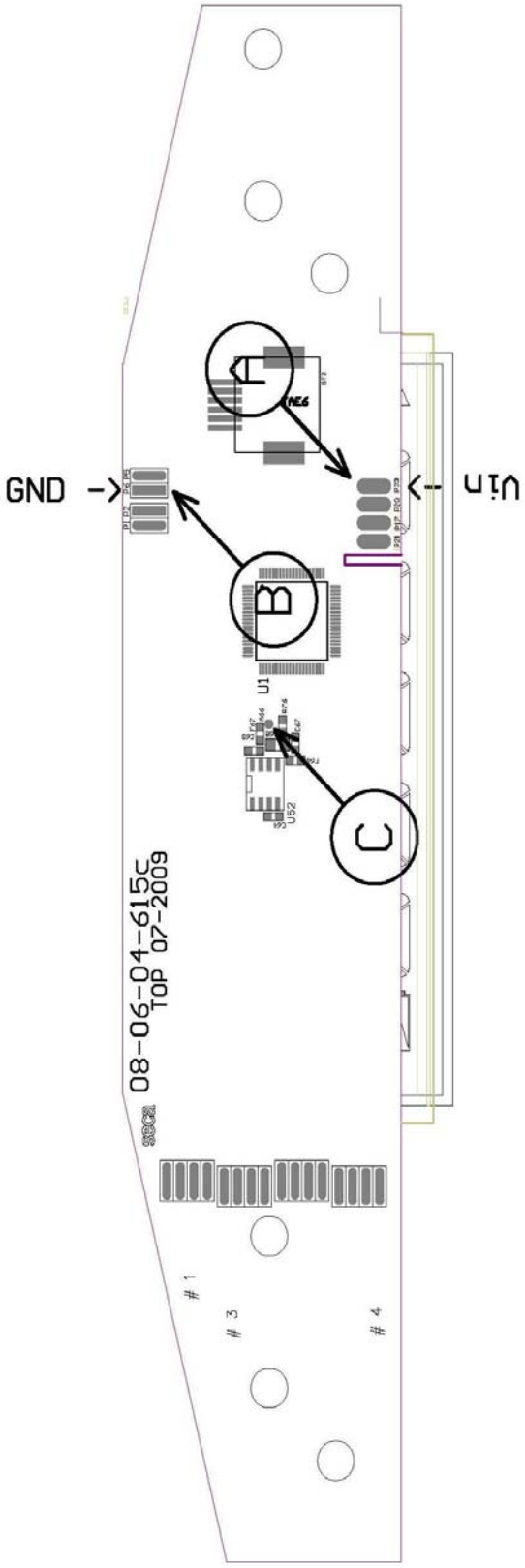
Appendixes



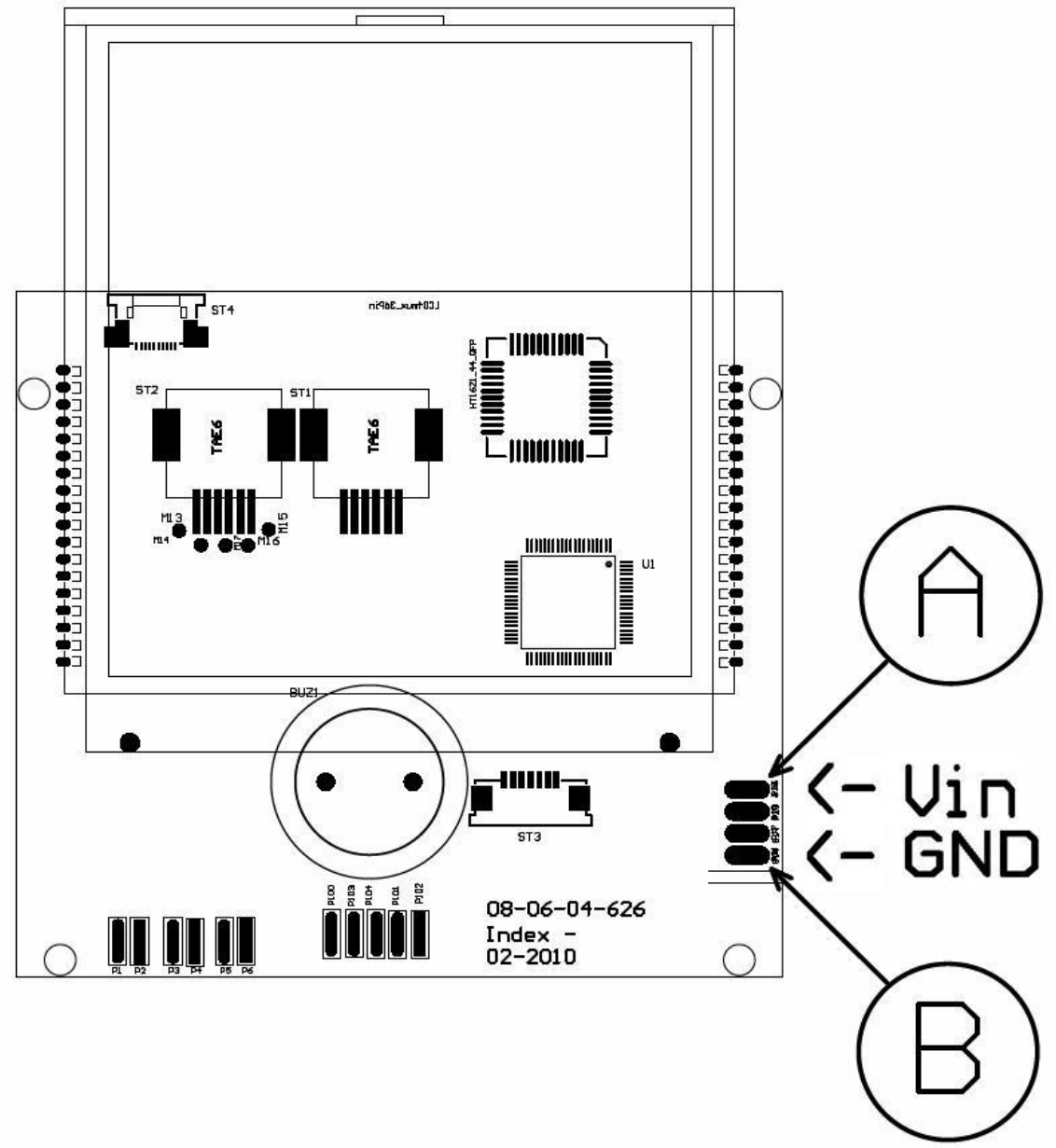
Appendix 1: Measuring points on SECA module 08-06-18-163 [703]



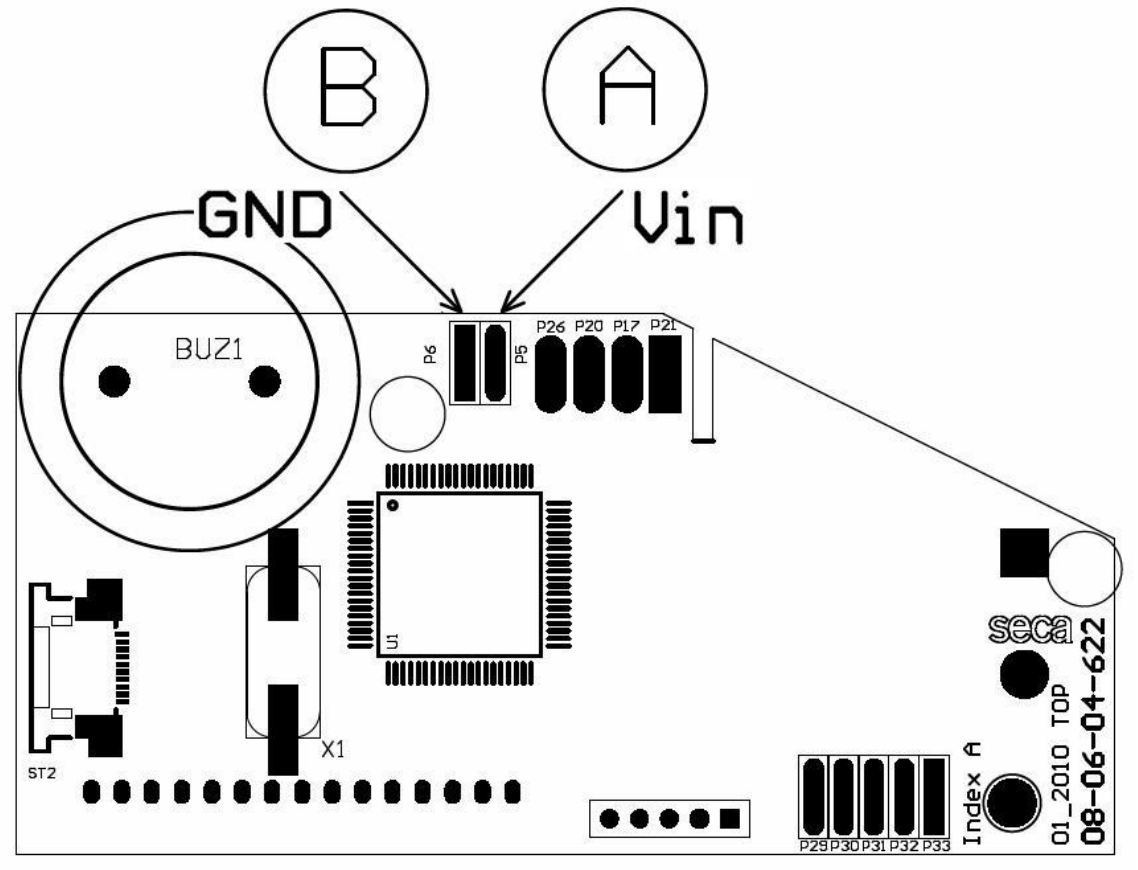
Appendix 2: Measuring points on SECA module 08-06-18-165 [704|284|285]



Appendix 3: Measuring points on SECA module 08-06-18-167 [374|376|378]



Appendix 4: Measuring points on SECA module 08-06-18-195a [284|285]



Appendix 5: Measuring points on SECA module 08-06-18-186a [264|274|284|285]

DMS - VCC
DMS - GND
DMS - HIGH
DMS - LOW

08-06-18-172
NEC G2 SMF
(for optional assembly)

08-06-18-163
NEC G2 Kompakt
(incl. LCD)

mains
red (+) / blue (-)

Slot for membrane keyboard

Membrane keyboard

RS 232 -
green
brown
white

load cell with plug connection

red (+)

blue (-)

batterie
red (+) / black (-)

mains socket
65-42-10-211

08-06-16-124
RS 232 cable harness
(for optional assembly)

load cell	VCC 1	GND 2	DMS-high 3	DMS-low 4
Hottinger	BLUE	BLACK	WHITE	RED
Tedea/Vishay	GREEN	BLACK	RED	WHITE
Kogean	GREEN	BLACK	WHITE	RED

Datum/Name:	29.03.2010 Fech.	19.05.2010 Fech.	15.09.2010 Fech.						
Änd.Mitteil. / CHANGE:	SMF assembly	RS232	holder removed						
Index / REVISION:	a	b	c						

seca HAMBURG

Erstellt / DRAWN	Geprüft / APPROVED Ver. c	PROJECTION
05.03.2010	15.09.2010	
Fechner	Winterberg	

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Maßstab / SCALE : 1:1

Werkstoff / MATERIAL :

Benennung / TITLE :

Kabelplan Mod. 703 NEC II
Cable plan mod. 703 NEC II

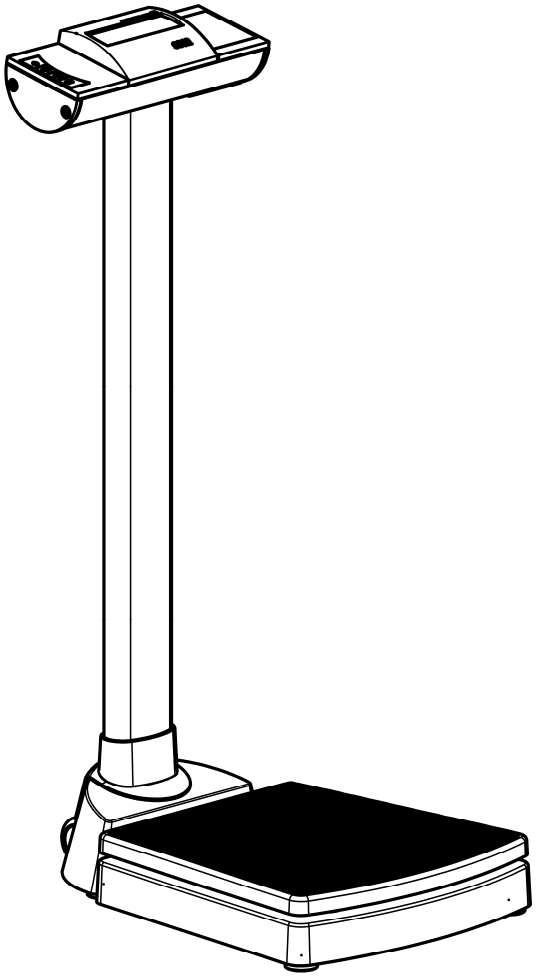
Nr. / NO. : 08-02-06-045

Blatt/SHEET 1/1

Mittwoch, 22. September 2010 19:16:35

R:\ARCHIV_DBWORKS\Firma\08-\08-02-\08-02-06-045

seca 703



seca 703

Contents

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II Safety instructions regarding the prevention of electrostatic charging (ESD protective measures) 3
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1.2 Setting the overload protection device 5
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2.2 Replacing battery compartment, NEC2 display and radio module 7

seca 703

I Safety measures

Before starting any work on the scale, first disconnect the power supply (mains and batteries).

II Safety instructions regarding the prevention of electrostatic charging (ESD protective measures)

ESD protective measures (electrostatic discharge) must be taken whenever work is performed on electronic components. Please observe the following precautions so that you can safely repair the scale:

- Ground yourself using an antistatic wrist strap
- Wear ESD safe shoes
- Wear ESD compatible clothing
- Only carry out the work to be performed in an electrostatic protective area
- Make sure the floor is electrically conductive
- Only use ESD proof tools

seca 703

1 Baseframe

Please be sure to observe the sequence listed below when removing/fitting the parts!

1.1 Replacing the load cell

- Place the scale on the side and detach the load cell cable connector.
- Unscrew the 4 cheese head screws (I) which secure the load cell (O, Fig. 3) to the frame (K).
- Unscrew the 4 screw connections (L) on the platform hood (P) and turn round the cross beam for the platform (M) with the load cell (O, Fig. 3).

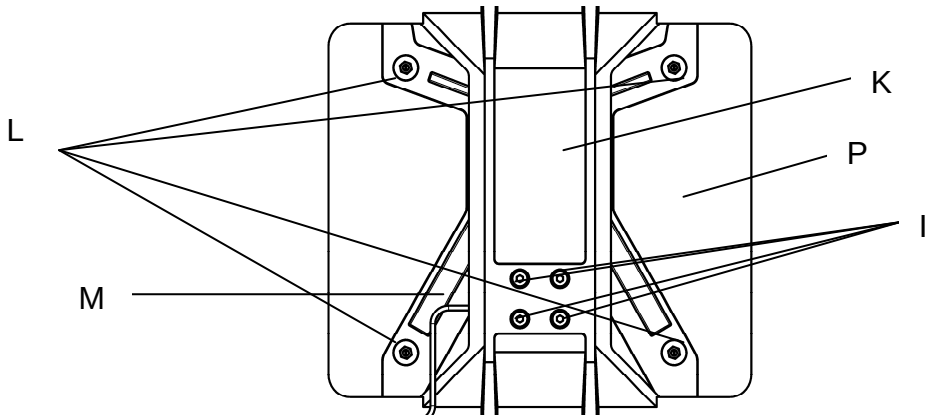


Figure 1: Replacing the load cell

- Unscrew the 4 cheese head screws (N) on the cross beam for the platform (M) from the load cell (O).

⚠ When assembling the load cells (O) the four cheese head screws (N/ I) must be tightened to Mt = 12.5 Nm!

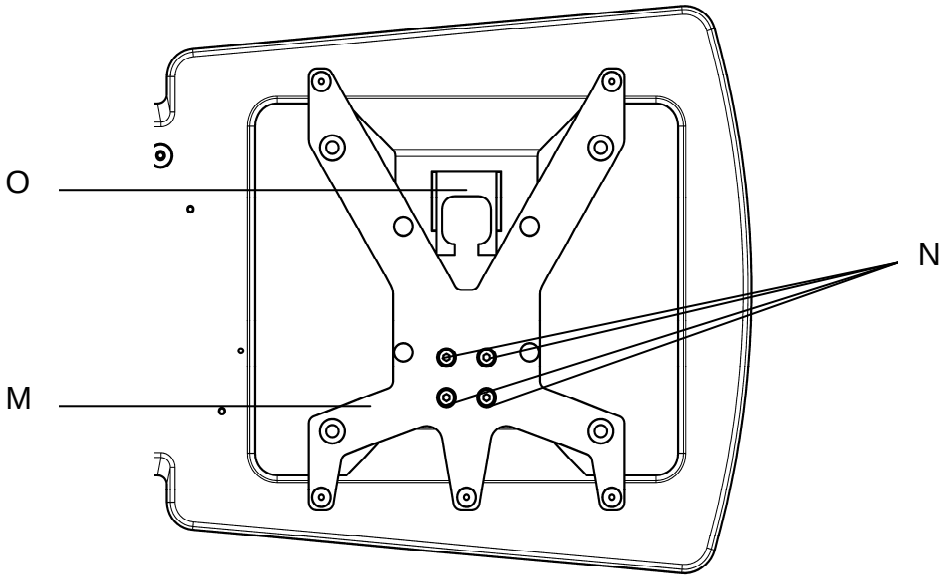


Figure 2: Replacing the load cell

1.2 Setting the overload protection device

- To protect the scale from overload, four overload protection devices are provided on the platform support (Fig. 3).
- Use a gauge to set dimensions D in accordance with the drawing in Figure 3.
- When tightening the locknuts pay attention not to change the adjustment of the screws (use needle-nose pliers to hold!)

⚠ The settings must be very accurate to prevent a forced shunt.

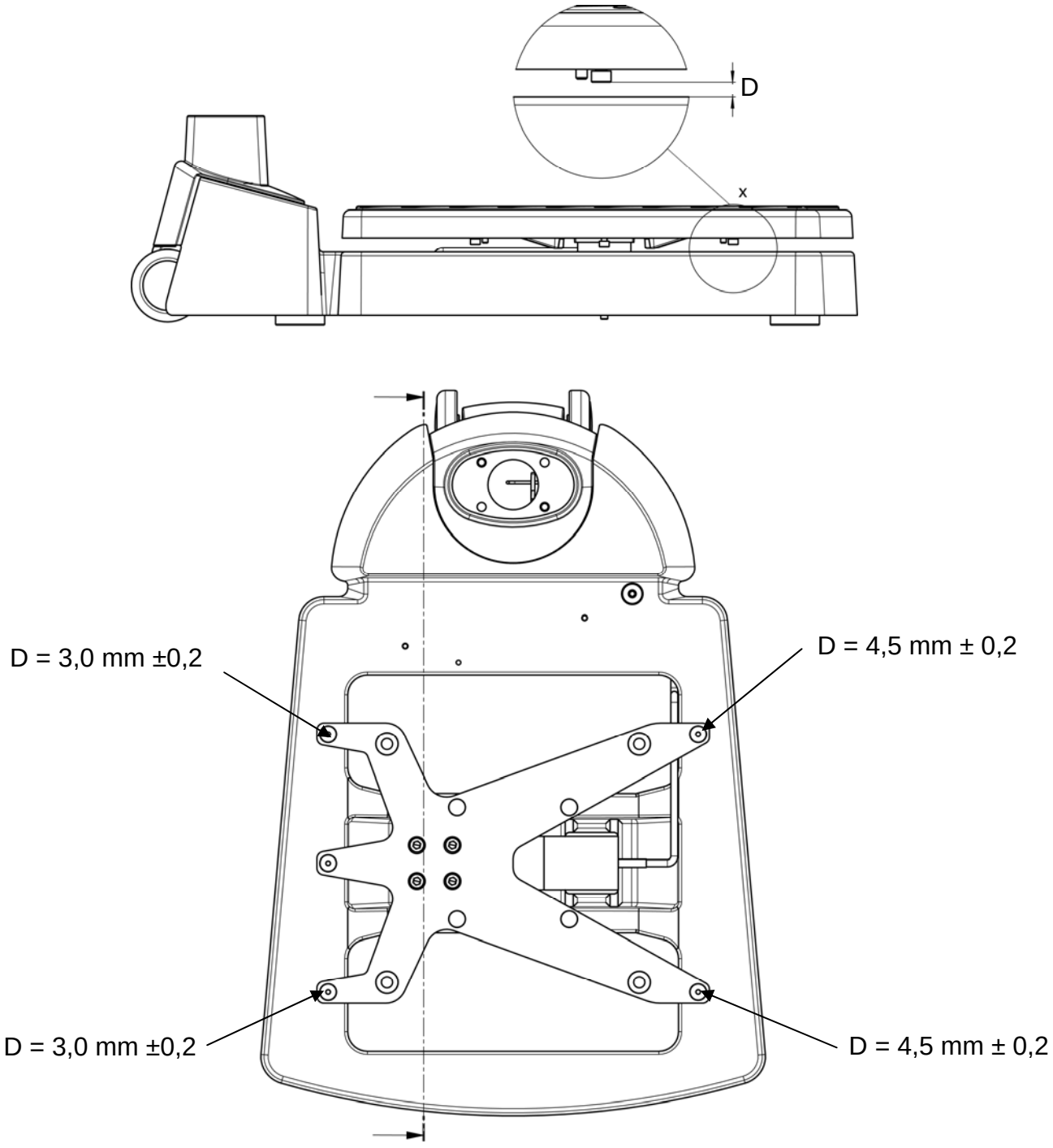


Figure 3: Setting the overload protection

2 Display

Please be sure to observe the sequence listed below when removing/fitting the parts!

2.1 Replacing the membrane keypad

- Unscrew the side covers (H) on the left and right.
- Move the left and the right operating housing slightly outwards and remove the display cover (I).
- Detach the 6-pole FFC (K) from the FFC connector (A) for the NEC2 display (B) and remove the left operating housing (C) with the membrane keypad (D).

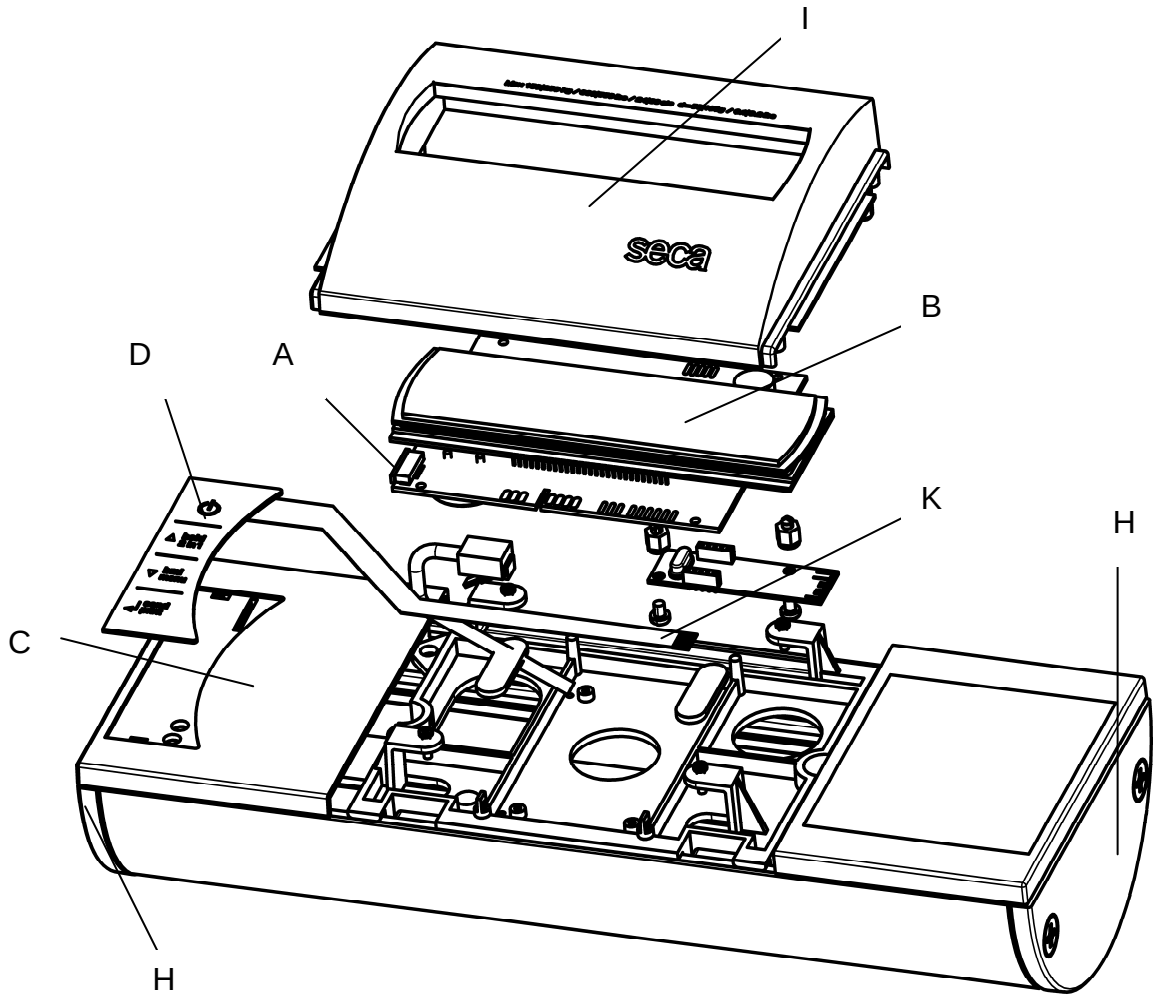


Figure 4: Replacing the membrane keypad

2.2 Replacing battery compartment, NEC2 display and radio module

First proceed as described in section 2.1.

- Remove the right operating housing.
- Unscrew the screw on the bottom housing profile which secures the board holder (E) and push the holder slightly to the left – lift out the battery compartment (M) to remove.
- Unscrew the 4 Torx screws (F), unsolder the cable connections and remove the NEC2 display (B) with radio module (G).
- Unscrew the radio module (G) from the NEC2 display (B).
- Re-assemble in reverse order.

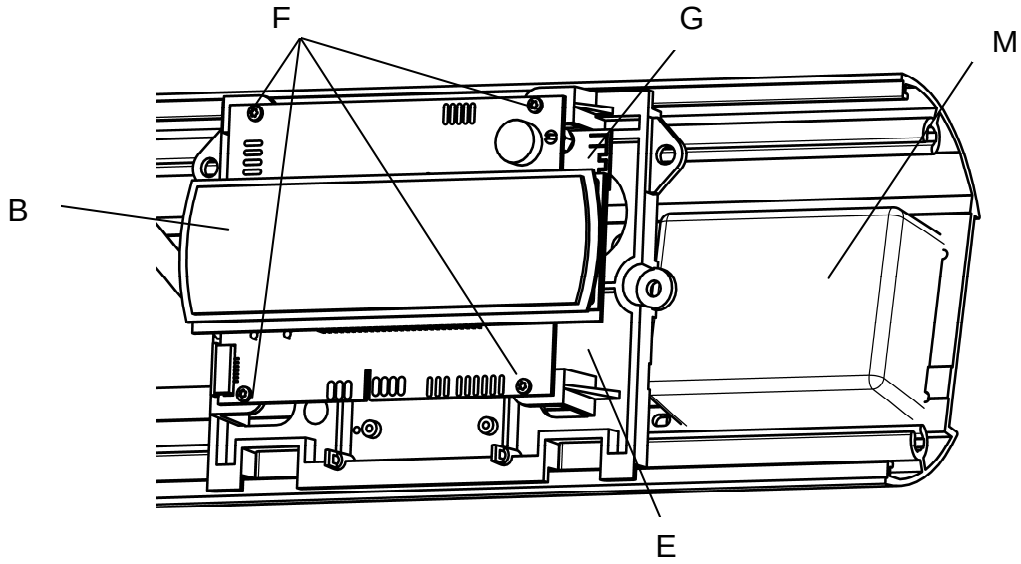


Figure 5: Replacing battery compartment, NEC2 display and radio module

Spare parts list 703 13 21 007 Frame

update Sept. 2012, valid until SN.:

acc. to drawing 30-34-00-807

Item	Article	Designation	Price stage
1	A020203298807	Frame	35
2	A011305397816	Threated plug	5
3	A011004221009	Fixing bolt	10
4	A011305270009	Plug	01
5	A020203295816	Column connection	20
6	A011202002009	Roller complete	20
7	A080612100009	Load cell 300kg, not approved	42
10	A020403246816	Platform hood	25
11	A011305426009	Mat	15
12	A020303293009	Cross beam for platform	22
13	A011602267009	Holder for connector	05
	A040206039807	Column	34
	A080616136119	Harness line connection	24
	A683210252009	Power supply 240V	28
	A683210265009	Power supply universal 110-240V	28
	A180107037509	Packaging complete	25
	A180101578009	Cardboard box	20

Spare parts list 703 13 21 007 Display

update Sept. 2012, valid until SN.:

acc. to drawing 30-34-00-805

Item	Article	Designation	Price stage
1	A340201226807	Profile	28
2	A340201216807	Operating housing left	10
3	A340204427009	Membrane keyboard FFC	25
4	A340201217807	Operating housing right	10
5	A340201219807	Cover operating housing right	05
6	A340201026602	Display cover, printed	20
7	A340201220807	Side cap	10
8	A500096520009	Screw	01
9	A340201214009	Holder for board	10
12	A080618163009	NEC2 DMS compact	43
13	A080618172009	Radio-Module	37
14	A080614239009	battery compartment	15
15	A663060010009	battery holder 6pc.	10
16	A080616107119	harness battery connection	15

Spare parts list 703 13 21 367 Frame

update Sept. 2012, valid until SN.:

acc. to drawing 30-34-00-807

Item	Article	Designation	Price stage
1	A020203298807	Frame	35
2	A011305397816	Threated plug	5
3	A011004221009	Fixing bolt	10
4	A011305270009	Plug	01
5	A020203295816	Column connection	20
6	A011202002009	Roller complete	20
7	A080612100009	Load cell 300kg, not approved	42
10	A020403246816	Platform hood	25
11	A011305426009	Mat	15
12	A020303293009	Cross beam for platform	22
13	A011602267009	Holder for connector	05
	A040206039807	Column	34
	A080616136119	Harness line connection	24
	A683210252009	Power supply 240V	28
	A683210265009	Power supply universal 110-240V	28
	A180107037509	Packaging complete	25
	A180101578009	Cardboard box	20

Spare parts list 703 13 21 367 Display

update Sept. 2012, valid until SN.:

acc. to drawing 30-34-00-805

Item	Article	Designation	Price stage
1	A340201226807	Profile	28
2	A340201216807	Operating housing left	10
3	A340204427009	Membrane keyboard FFC	25
4	A340201217807	Operating housing right	10
5	A340201219807	Cover operating housing right	05
6	A340201026602	Display cover, printed	20
7	A340201220807	Side cap	10
8	A500096520009	Screw	01
9	A340201214009	Holder for board	10
12	A080618163009	NEC2 DMS compact	43
13	A080618172009	Radio-Module	37
14	A080614239009	battery compartment	15
15	A663060010009	battery holder 6pc.	10
16	A080616107119	harness battery connection	15

Spare parts list 703 13 21 993 Frame

update Sept. 2012, valid until SN.:

acc. to drawing 30-34-00-807

Item	Article	Designation	Price stage
1	A020203298807	Frame	35
2	A011305397816	Threated plug	5
3	A011004221009	Fixing bolt	10
4	A011305270009	Plug	01
5	A020203295816	Column connection	20
6	A011202002009	Roller complete	20
7	A080612100009	Load cell 300kg, not approved	42
10	A020403246816	Platform hood	25
11	A011305426009	Mat	15
12	A020303293009	Cross beam for platform	22
13	A011602267009	Holder for connector	05
	A040206039807	Column	34
	A080616136119	Harness line connection	24
	A683210252009	Power supply 240V	28
	A683210265009	Power supply universal 110-240V	28
	A180107037509	Packaging complete	25
	A180101578009	Cardboard box	20

Spare parts list 703 13 21 993 Display

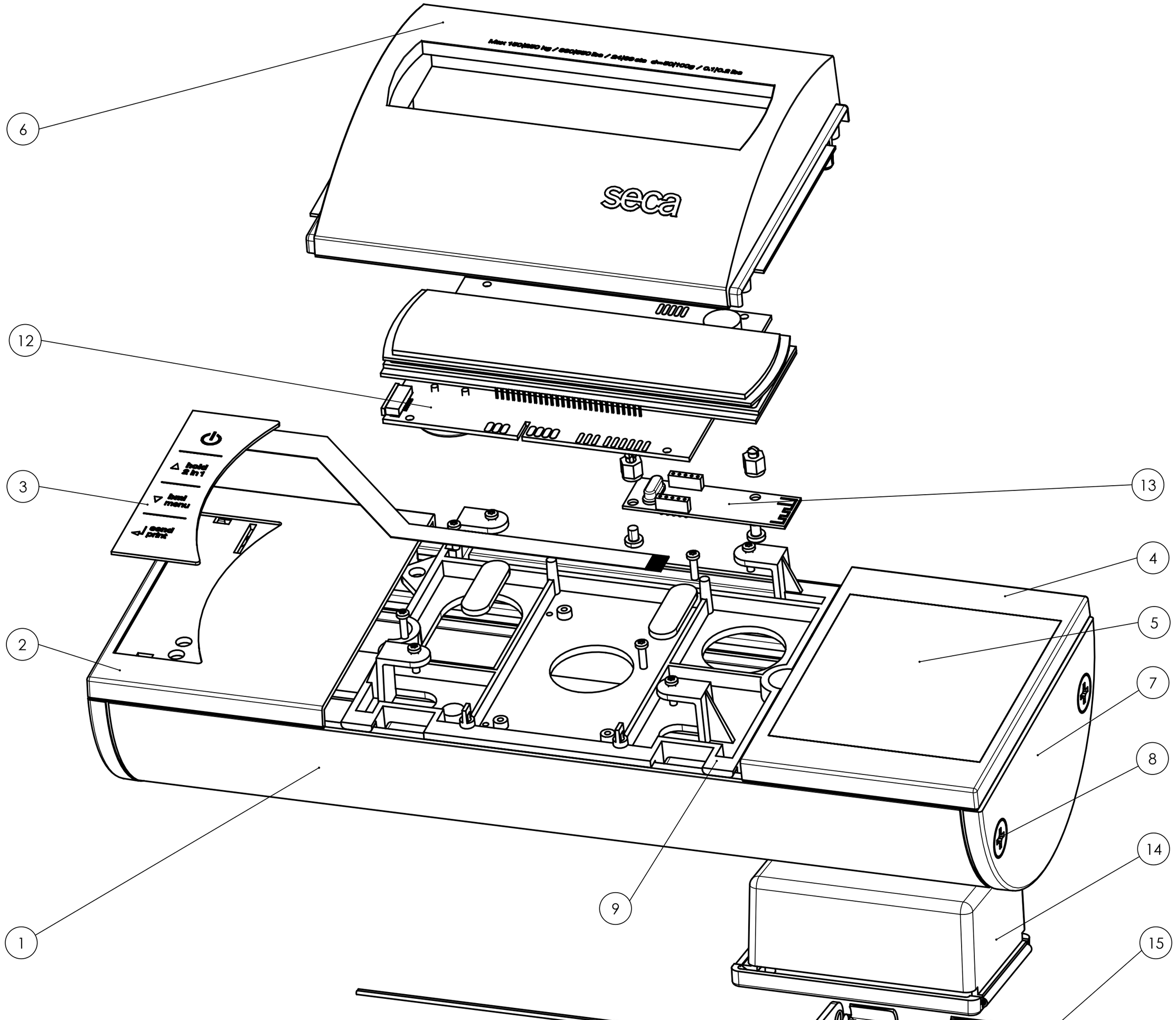
update Sept. 2012, valid until SN.:

acc. to drawing 30-34-00-805

Item	Article	Designation	Price stage
1	A340201226807	Profile	28
2	A340201216807	Operating housing left	10
3	A340204427009	Membrane keyboard FFC	25
4	A340201217807	Operating housing right	10
5	A340201219807	Cover operating housing right	05
6	A340201026602	Display cover, printed	20
7	A340201220807	Side cap	10
8	A500096520009	Screw	01
9	A340201214009	Holder for board	10
12	A080618163009	NEC2 DMS compact	43
13	A080618172009	Radio-Module	37
14	A080614239009	battery compartment	15
15	A663060010009	battery holder 6pc.	10
16	A080616107119	harness battery connection	15

spare parts for measuring rod refer to

manual modell 220 cm/inch



Datum/Name:									
Änd.Mitteil. / CHANGE:									
Index / REVISION:									

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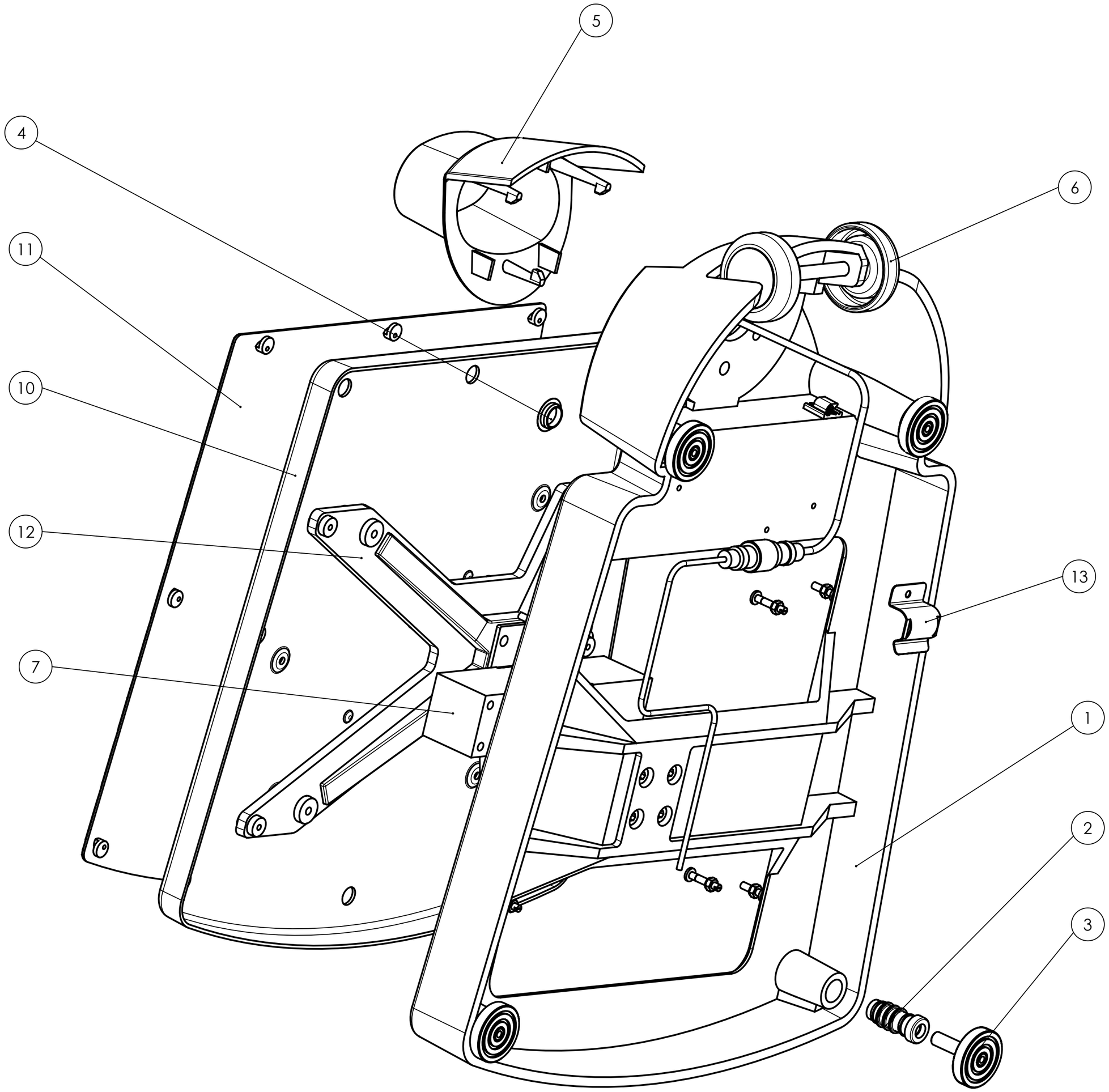

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